

What is claimed is:

1. An Her-2/neu plasmid construct having anti-cancer activity which is prepared by inserting a truncated human Her-2/neu gene lacking the intracellular domain into plasmid pTV2 or pCK.

2. The plasmid construct of claim 1, wherein the human Her-2/neu gene has the nucleotide sequence of SEQ ID NO: 2.

10 3. The plasmid construct of claim 2, which is pNeu_{TM} (KCCM-10393) or pCK_{TM} (KCCM-10396)

4. The plasmid construct of claim 1, wherein the truncated human Her-2/neu gene further lacks the transmembrane domain.

15 5. The plasmid construct of claim 4, wherein the human Her-2/neu gene has the nucleotide of SEQ ID NO: 3.

20 6. The plasmid construct of claim 5, which is pNeu_{ECD} (KCCM-10394) or pCK_{ECD} (KCCM-10395).

7. The plasmid construct of claim 1, wherein the signal peptide of the human Her-2/neu gene is replaced by the signal peptide of herpes simplex type I glycoprotein D (gD).

25 8. The plasmid construct of claim 7, which is pNeu_{TM-gDs}.

30 9. The plasmid construct of claim 4, wherein the signal peptide of the human Her-2/neu gene is replaced by the signal peptide of herpes simplex type I glycoprotein D (gD).

10. The plasmid construct of claim 7, which is pNeu_{ECD-gDs}.

11. The plasmid construct of claim 1, which further translates a cytokine gene besides the human Her-2/neu gene.

12. The plasmid construct of claim 11, wherein the cytokine gene is selected from 5 the group consisting of granulocyte-macrophage colony-stimulating factor (GM-CSF), FMS-like tyrosine kinase 3 ligand (Flt3L), early T lymphocyte activation-1 (Eta-1), interleukin-12 (IL-12), IL-15 and IL-18.

13. A DNA vaccine for preventing and/or treating cancer, which comprises the 10 plasmid construct of claim 1 as an effective ingredient and a pharmaceutically acceptable carrier.

14. The DNA vaccine of claim 13, which further comprises a cytokine gene expressing plasmid.

15. The DNA vaccine of claim 14, wherein the cytokine gene is selected from the group consisting of GM-CSF, Flt3L, Eta-1, IL-12, IL-15 and IL-18.

16. A method for preventing and/or treating cancer, which comprises the step of 20 administering an effective amount of the DNA vaccine of claim 13.